

SEQUENCE LISTING

<110> CHANG, HAN
JACKSON, DONALD
RAMANATHAN, CHANDRA S.
CHEN, JIAN
SIEMERS, NATHAN

<120> NOVEL HUMAN ION CHANNELS

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<150> 60/283,183

<151> 2001-04-11

<150> 60/281,992

<151> 2001-04-05

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<213> Homo sapiens

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<213> Homo sapiens

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<212> DNA

<213> Homo sapiens

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atcagtgtg                                     129
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<210> 8

<211> 267

<212> DNA

<213> Homo sapiens

<400> 8

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<210> 9

<211> 765

<212> DNA

<213> Homo sapiens

<400> 9

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<212> DNA
<213> Homo sapiens

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gcgctctccc tggcccagtg catcagcgtg 150

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<210> 11
<211> 114
<212> DNA
<213> Homo sapiens

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<220>
<221> modified_base
<222> (66)
<223> a, c, t, g, other or unknown

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<210> 12
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<212> DNA
<213> Homo sapiens

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cccttagacc gagaagta 138

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<210> 13
<211> 288
<212> DNA
<213> Homo sapiens

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gggttggtat gtgctgtggt cctcttctcc attgggatcc tccttatcct aggttgacga 180
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aacctcatca ctgcaaatgc aacaaagctc cagaaagcag agagctga 288

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 <212> DNA
 <213> Homo sapiens

<400> 14
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 <212> DNA
 <213> Homo sapiens

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 <212> DNA
 <213> Homo sapiens

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 <212> DNA
 <213> Homo sapiens

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 <212> DNA
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<213> Homo sapiens

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<210> 24
<211> 252
<212> DNA
<213> Homo sapiens

<400> 24
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agggtgctttt cctgggagag ccagacaacc atgggtgtgtc agcaggagggt gtctcaggac 180
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35 40 45
Arg Phe Phe Leu Asp Arg Asp Gly Phe Leu Phe Arg Tyr Ile Leu Asp
50 55 60
Tyr Leu Arg Asp Leu Gln Leu Val Leu Pro Asp Tyr Phe Pro Glu Arg
65 70 75 80
Ser Arg Leu Gln Arg Glu Ala Glu Tyr Phe Glu Leu Pro Glu Leu Val
85 90 95
Arg Arg Leu Gly Ala Pro Gln
100

<210> 29
<211> 101
<212> PRT
<213> Homo sapiens

<400> 29
Phe Gln Phe Pro Glu Val Val Pro Leu Asn Ile Gly Gly Ala His Phe
1 5 10 15

Thr Thr Arg Leu Ser Thr Leu Arg Cys Tyr Glu Asp Thr Met Leu Ala
 20 25 30
 Ala Met Phe Ser Gly Arg His Tyr Ile Pro Thr Asp Ser Glu Gly Arg
 35 40 45
 Tyr Phe Ile Asp Arg Asp Gly Thr His Phe Gly Asp Val Leu Asn Phe
 50 55 60
 Leu Arg Ser Gly Asp Leu Pro Pro Arg Glu Arg Val Arg Ala Val Tyr
 65 70 75 80
 Lys Glu Ala Gln Tyr Tyr Ala Ile Gly Pro Leu Leu Glu Gln Leu Glu
 85 90 95
 Asn Met Gln Pro Leu
 100

<210> 30
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 30
 Gly Asp Cys Arg Met Ala His Ala Glu Gln Lys Leu Met Asp Asp Leu
 1 5 10 15
 Leu Asn Lys Thr Arg Tyr Asn Asn Leu Ile Cys Pro Ala Thr Ser Ser
 20 25 30
 Ser Gln Leu Ile Ser Ile Glu Thr Glu Leu Ser Leu Ala Gln Cys Ile
 35 40 45
 Ser Val
 50

<210> 31
 <211> 96
 <212> PRT
 <213> Homo sapiens

<400> 31
 Val Glu Leu Asn Val Gly Gly Gln Val Tyr Phe Thr Arg His Ser Thr
 1 5 10 15
 Leu Ile Ser Ile Pro His Ser Leu Leu Trp Lys Met Phe Ser Pro Lys
 20 25 30
 Arg Asp Thr Ala Asn Asp Leu Ala Lys Asp Ser Lys Gly Arg Phe Phe
 35 40 45
 Ile Asp Arg Asp Gly Phe Leu Phe Arg Tyr Ile Leu Asp Tyr Leu Arg
 50 55 60
 Asp Arg Gln Val Val Leu Pro Asp His Phe Pro Glu Lys Gly Arg Leu

65		70		75		80									
Lys	Arg	Glu	Ala	Glu	Tyr	Phe	Gln	Leu	Pro	Asp	Leu	Val	Lys	Leu	Leu
		85							90					95	

<210> 32
 <211> 518
 <212> PRT
 <213> Homo sapiens

<400> 32	Pro	Ala	Gly	Val	Thr	Val	Pro	Pro	Pro	Ser	Arg	Pro	Ser	Arg	Pro	Ala
	1				5					10					15	
Gly	Leu	Phe	Leu	Arg	Ala	Asp	Thr	Gly	His	Arg	Thr	Pro	Gly	Trp	Gly	
			20					25					30			
Gly	Gly	Gly	Gly	Gly	Ala	Gly	Gly	Arg	Gly	Gly	Ala	Ala	Pro	Gly	Pro	
		35					40					45				
Gly	Val	Gly	Ala	Thr	Arg	Arg	Phe	Ala	Gly	Arg	Arg	Gly	Cys	Ala	Arg	
	50					55					60					
His	Gly	Ala	Ala	Val	Pro	Ala	Ala	Val	Cys	Cys	Glu	Arg	Leu	Val	Leu	
	65				70				75						80	
Asn	Val	Ala	Gly	Leu	Arg	Phe	Glu	Thr	Arg	Ala	Arg	Thr	Leu	Gly	Arg	
				85					90					95		
Phe	Pro	Asp	Thr	Leu	Leu	Gly	Asp	Pro	Ala	Arg	Arg	Gly	Arg	Phe	Tyr	
			100					105					110			
Asp	Asp	Ala	Arg	Arg	Glu	Tyr	Phe	Phe	Asp	Arg	His	Arg	Pro	Ser	Phe	
		115					120					125				
Asp	Ala	Val	Leu	Tyr	Tyr	Tyr	Gln	Ser	Gly	Gly	Arg	Leu	Arg	Arg	Pro	
	130					135					140					
Ala	His	Val	Pro	Leu	Asp	Val	Phe	Leu	Glu	Glu	Val	Ala	Phe	Tyr	Gly	
	145				150					155					160	
Leu	Gly	Ala	Ala	Ala	Leu	Ala	Arg	Leu	Arg	Glu	Asp	Glu	Gly	Cys	Pro	
			165					170						175		
Val	Pro	Pro	Glu	Arg	Pro	Leu	Pro	Arg	Arg	Ala	Phe	Ala	Arg	Gln	Leu	
			180					185					190			
Trp	Leu	Leu	Phe	Glu	Phe	Pro	Glu	Ser	Ser	Gln	Ala	Ala	Arg	Val	Leu	
	195						200					205				
Ala	Val	Val	Ser	Val	Leu	Val	Ile	Leu	Val	Ser	Ile	Val	Val	Phe	Cys	
	210					215					220					
Leu	Glu	Thr	Leu	Pro	Asp	Phe	Arg	Asp	Asp	Arg	Asp	Gly	Thr	Gly	Leu	
	225				230					235					240	

Ala Ala Ala Ala Ala Ala Gly Pro Phe Pro Ala Pro Leu Asn Gly Ser
 245 250 255
 Ser Gln Met Pro Gly Asn Pro Pro Arg Leu Pro Phe Asn Asp Pro Phe
 260 265 270
 Phe Val Val Glu Thr Leu Cys Ile Cys Trp Phe Ser Phe Glu Leu Leu
 275 280 285
 Val Arg Leu Leu Val Cys Pro Ser Lys Ala Ile Phe Phe Lys Asn Val
 290 295 300
 Met Asn Leu Ile Asp Phe Val Ala Ile Leu Pro Tyr Phe Val Ala Leu
 305 310 315 320
 Gly Thr Glu Leu Ala Arg Gln Arg Gly Val Gly Gln Gln Ala Met Ser
 325 330 335
 Leu Ala Ile Leu Arg Val Ile Arg Leu Val Arg Val Phe Arg Ile Phe
 340 345 350
 Lys Leu Ser Arg His Ser Lys Gly Leu Gln Ile Leu Gly Gln Thr Leu
 355 360 365
 Arg Ala Ser Met Arg Glu Leu Gly Leu Leu Ile Phe Phe Leu Phe Ile
 370 375 380
 Gly Val Val Leu Phe Ser Ser Ala Val Tyr Phe Ala Glu Val Asp Arg
 385 390 395 400
 Val Asp Ser His Phe Thr Ser Ile Pro Glu Ser Phe Trp Trp Ala Val
 405 410 415
 Val Thr Met Thr Thr Val Gly Tyr Gly Asp Met Ala Pro Val Thr Val
 420 425 430
 Gly Gly Lys Ile Val Gly Ser Leu Cys Ala Ile Ala Gly Val Leu Thr
 435 440 445
 Ile Ser Leu Pro Val Pro Val Ile Val Ser Asn Phe Ser Tyr Phe Tyr
 450 455 460
 His Arg Glu Thr Glu Gly Glu Glu Ala Gly Met Phe Ser His Val Asp
 465 470 475 480
 Met Gln Pro Cys Gly Pro Leu Glu Gly Lys Ala Asn Gly Gly Leu Val
 485 490 495
 Asp Gly Glu Val Pro Glu Leu Pro Pro Pro Leu Trp Pro Pro Gly Lys
 500 505 510
 His Leu Val Thr Glu Val
 515

<210> 33
 <211> 263

<212> PRT

<213> Homo sapiens

<400> 33

Thr	Gly	Arg	Phe	Val	Leu	Leu	Ala	Ala	Leu	Ile	Gly	Leu	Tyr	Leu	Val
1				5					10					15	
Ala	Gly	Ala	Thr	Val	Phe	Ser	Ala	Leu	Glu	Ser	Pro	Gly	Glu	Ala	Glu
			20					25					30		
Ala	Arg	Ala	Arg	Trp	Gly	Ala	Thr	Leu	Arg	Asn	Phe	Ser	Ala	Ala	His
		35					40					45			
Gly	Val	Ala	Glu	Pro	Glu	Leu	Arg	Ala	Phe	Leu	Arg	His	Tyr	Glu	Ala
	50					55					60				
Ala	Leu	Ala	Ala	Gly	Val	Arg	Ala	Asp	Ala	Leu	Arg	Pro	Arg	Trp	Asp
65					70					75					80
Phe	Pro	Gly	Ala	Phe	Tyr	Phe	Val	Gly	Thr	Val	Val	Ser	Thr	Ile	Gly
				85					90					95	
Phe	Gly	Met	Thr	Thr	Pro	Ala	Thr	Val	Gly	Gly	Lys	Ala	Phe	Leu	Ile
			100					105					110		
Ala	Tyr	Gly	Leu	Phe	Gly	Cys	Ala	Gly	Thr	Ile	Leu	Phe	Phe	Asn	Leu
		115					120					125			
Phe	Leu	Glu	Arg	Ile	Ile	Ser	Leu	Leu	Ala	Phe	Ile	Met	Arg	Ala	Cys
	130					135					140				
Arg	Glu	Arg	Gln	Leu	Arg	Arg	Ser	Gly	Leu	Leu	Pro	Ala	Thr	Phe	Arg
145					150					155					160
Arg	Gly	Ser	Ala	Leu	Ser	Glu	Ala	Asp	Ser	Leu	Ala	Gly	Trp	Lys	Pro
				165					170					175	
Ser	Val	Tyr	His	Val	Leu	Leu	Ile	Leu	Gly	Leu	Phe	Ala	Val	Leu	Leu
			180					185					190		
Ser	Cys	Cys	Ala	Ser	Ala	Met	Tyr	Thr	Ser	Val	Glu	Gly	Trp	Asp	Tyr
		195					200					205			
Val	Asp	Ser	Leu	Tyr	Phe	Cys	Phe	Val	Thr	Phe	Ser	Thr	Ile	Gly	Phe
	210					215					220				
Gly	Asp	Leu	Val	Ser	Ser	Gln	His	Ala	Ala	Tyr	Arg	Asn	Gln	Gly	Leu
225					230					235					240
Tyr	Arg	Leu	Gly	Asn	Phe	Leu	Phe	Ile	Leu	Leu	Gly	Val	Cys	Cys	Ile
				245					250					255	
Tyr	Ser	Leu	Phe	Asn	Val	Ile									
			260												

<210> 34

<211> 43
<212> PRT
<213> Homo sapiens

<400> 34
Ala Glu Gln Lys Leu Met Asp Asp Leu Leu Asn Lys Thr Arg Tyr His
1 5 10 15
Asn Leu Ile Arg Pro Ala Ala Ser Ser Ser Gln Leu Ile Ser Ile Glu
20 25 30
Met Glu Leu Ser Leu Ala Gln Cys Ile Ser Val
35 40

<210> 35
<211> 89
<212> PRT
<213> Homo sapiens

<400> 35
Met Glu Ala Leu Thr Leu Trp Leu Leu Pro Trp Ile Cys Gln Cys Val
1 5 10 15
Ser Val Arg Ala Asp Ser Ile Ile His Ile Gly Ala Ile Phe Glu Glu
20 25 30
Asn Ala Ala Lys Asp Asp Arg Val Phe Gln Leu Ala Val Ser Asp Leu
35 40 45
Ser Leu Asn Asp Asp Ile Leu Gln Ser Glu Lys Ile Thr Tyr Ser Ile
50 55 60
Lys Val Ile Glu Ala Asn Asn Pro Phe Gln Ala Val Gln Glu Gly Tyr
65 70 75 80
Leu Cys Glu Leu Asn Thr Gln Gly Ile
85

<210> 36
<211> 240
<212> PRT
<213> Homo sapiens

<400> 36
Met Leu Arg Pro Leu Ile Thr Arg Ser Pro Ala Ser Pro Leu Asn Asn
1 5 10 15
Gln Gly Thr Pro Thr Pro Ala Gln Leu Thr Lys Ser Asn Ala His Val
20 25 30
His Thr Asp Val Gly Ser His Met Tyr Thr Ser Ser Leu Ala Thr Leu
35 40 45
Thr Lys Tyr Pro Val Ser Arg Ile Arg Arg Leu Cys Asp Gly Thr Glu
50 55 60

Pro Ile Val Leu Asp Ser Leu Lys Gln His Tyr Phe Thr Asp Arg Asp
 65 70 75 80
 Gly Gln Met Phe Arg Tyr Ile Leu Asn Phe Leu Arg Thr Ser Lys Leu
 85 90 95
 Leu Ile Leu Asp Asp Phe Lys Asp Tyr Thr Leu Leu Tyr Glu Glu Ala
 100 105 110
 Lys Tyr Phe Gln Leu Gln Pro Met Leu Leu Glu Met Glu Arg Trp Lys
 115 120 125
 Gln Asp Arg Glu Thr Gly Arg Phe Ser Arg Pro Cys Glu Cys Leu Val
 130 135 140
 Val Cys Val Ala Pro Asp Leu Arg Glu Arg Ile Thr Leu Ser Gly Asp
 145 150 155 160
 Lys Ser Leu Val Glu Glu Val Phe Pro Glu Ile Gly Asp Val Met Cys
 165 170 175
 Asn Phe Ile Ser Ala Gly Trp Asn His Asp Ser Thr His Ile Val Arg
 180 185 190
 Phe Pro Leu Ser Gly Tyr Cys His Leu Asn Ser Val Gln Val Leu Glu
 195 200 205
 Arg Leu Gln Gln Arg Gly Phe Glu Ile Val Gly Ser Cys Arg Gly Gly
 210 215 220
 Val Gly Leu Ser Val Pro Ser Ile Ile Trp Ile Lys Gln Glu Pro Leu
 225 230 235 240

<210> 37
 <211> 50
 <212> PRT
 <213> Homo sapiens

<400> 37
 Gly Asp Cys Arg Met Ala His Ala Glu Gln Lys Leu Met Asp Asp Leu
 1 5 10 15
 Leu Asn Lys Thr Cys Tyr Asn Asn Leu Ile Arg Pro Ala Thr Ser Ser
 20 25 30
 Ser Gln Leu Ile Ser Ile Gln Thr Ala Leu Ser Leu Ala Gln Cys Ile
 35 40 45
 Ser Val
 50

<210> 38
 <211> 38
 <212> PRT

<213> Homo sapiens

<220>

<221> MOD_RES

<222> (22)

<223> Any amino acid

<400> 38

Arg	Lys	Arg	Gly	Asn	Pro	Pro	Ser	Gly	Gly	Pro	Thr	Ser	Leu	Phe	Ile
1				5					10					15	
Leu	Pro	Glu	Asp	Asn	Xaa	Ile	Arg	Lys	Tyr	Thr	Arg	Phe	Ile	Ile	Lys
			20					25					30		
Trp	Pro	Thr	Phe	Glu	Tyr										
			35												

<210> 39

<211> 46

<212> PRT

<213> Homo sapiens

<400> 39

Met	Asp	Asn	Arg	Gly	Phe	Gln	Gln	Gly	Ser	Phe	Ser	Ser	Phe	Gln	Asn
1				5					10					15	
Ser	Ser	Ser	Asp	Glu	Asp	Leu	Met	Asp	Ile	Pro	Ala	Thr	Ala	Met	Asp
			20					25					30		
Phe	Ser	Met	Arg	Asp	Asp	Val	Pro	Pro	Leu	Asp	Arg	Glu	Val		
		35				40						45			

<210> 40

<211> 95

<212> PRT

<213> Homo sapiens

<400> 40

Met	Glu	Val	Val	Leu	Ile	Phe	Leu	Cys	Ser	Leu	Leu	Ala	His	Ile	Val
1				5					10					15	
Leu	Ala	Asp	Ala	Val	Glu	Arg	Glu	Lys	Gln	Ile	Asp	Pro	Phe	His	Tyr
			20					25					30		
Asp	Tyr	Gln	Thr	Leu	Arg	Ile	Arg	Gly	Leu	Val	Cys	Ala	Val	Val	Leu
		35				40					45				
Phe	Ser	Ile	Gly	Ile	Leu	Leu	Ile	Leu	Gly	Cys	Arg	Cys	Lys	Cys	Ser
	50				55					60					
Phe	Asn	Gln	Lys	Pro	Arg	Thr	Pro	Gly	Glu	Glu	Glu	Ala	Gln	Val	Glu
65				70					75					80	
Asn	Leu	Ile	Thr	Ala	Asn	Ala	Thr	Lys	Leu	Gln	Lys	Ala	Glu	Ser	
				85					90					95	

<210> 41
 <211> 143
 <212> PRT
 <213> Homo sapiens

<400> 41
 Val Ser Tyr Val Lys Ala Ile Asp Ile Trp Met Ala Val Cys Leu Leu
 1 5 10 15
 Phe Val Phe Ala Ala Leu Leu Glu Tyr Ala Ala Ile Asn Phe Val Ser
 20 25 30
 Arg Gln His Lys Glu Phe Ile Arg Leu Arg Arg Arg Gln Arg Arg Gln
 35 40 45
 Arg Leu Glu Glu Asp Ile Ile Gln Glu Ser Arg Phe Tyr Phe Arg Gly
 50 55 60
 Tyr Gly Leu Gly His Cys Leu Gln Ala Arg Asp Gly Gly Pro Met Glu
 65 70 75 80
 Gly Ser Gly Ile Tyr Ser Pro Gln Pro Pro Ala Pro Leu Leu Arg Glu
 85 90 95
 Gly Glu Thr Thr Arg Lys Leu Tyr Val Asp Ala Lys Arg Ile Asp Thr
 100 105 110
 Ile Ser Arg Ala Val Phe Pro Phe Thr Phe Leu Ile Phe Asn Ile Phe
 115 120 125
 Tyr Trp Val Val Tyr Lys Val Leu Trp Ser Glu Asp Ile His Gln
 130 135 140

<210> 42
 <211> 65
 <212> PRT
 <213> Homo sapiens

<400> 42
 Gly Leu Leu Ile Phe Ile Leu Leu Pro Leu Leu Thr Phe Val His Thr
 1 5 10 15
 Val Gly Trp Thr Tyr Lys Lys Gly Leu Tyr Phe Ala Leu Thr Leu Ser
 20 25 30
 Ile Ile Gly Phe Gly Asp Tyr Val Leu Gly Ile Asn Pro Ser Lys Asn
 35 40 45
 Tyr Ser Arg Ile Tyr Pro Ile Ile Arg Ile Leu Trp Cys Thr Phe Gly
 50 55 60
 Leu
 65

<213> Homo sapiens

Ala Ala

<210> 44
<211> 342
<212> PRT
<213> Homo sapiens

<400> 44

Pro	Pro	Ala	Pro	Ala	Pro	Thr	Pro	Thr	Pro	Arg	Leu	Ser	Ile	Ser	Ser
1				5					10					15	
Arg	Ala	Thr	Val	Val	Ala	Arg	Met	Glu	Gly	Thr	Ser	Gln	Gly	Gly	Leu
			20					25					30		
Gln	Thr	Val	Met	Lys	Trp	Lys	Thr	Val	Val	Ala	Ile	Phe	Val	Val	Val
			35				40					45			
Val	Val	Tyr	Leu	Val	Thr	Gly	Gly	Leu	Val	Phe	Arg	Ala	Leu	Glu	Gln
	50					55				60					
Pro	Phe	Glu	Ser	Ser	Gln	Lys	Asn	Thr	Ile	Ala	Leu	Glu	Lys	Ala	Glu
65					70					75					80
Phe	Leu	Arg	Asp	His	Val	Cys	Val	Ser	Pro	Gln	Glu	Leu	Glu	Thr	Leu
				85					90					95	
Ile	Gln	His	Ala	Leu	Asp	Ala	Asp	Asn	Ala	Gly	Val	Ser	Pro	Ile	Gly
			100					105					110		
Asn	Ser	Ser	Asn	Asn	Ser	Ser	His	Trp	Asp	Leu	Gly	Ser	Ala	Phe	Phe
		115					120					125			
Phe	Ala	Gly	Thr	Val	Ile	Thr	Thr	Ile	Gly	Tyr	Gly	Asn	Ile	Ala	Pro
	130					135					140				
Ser	Thr	Glu	Gly	Gly	Lys	Ile	Phe	Cys	Ile	Leu	Tyr	Ala	Ile	Phe	Gly
145					150					155					160
Ile	Pro	Leu	Phe	Gly	Phe	Leu	Leu	Ala	Gly	Ile	Gly	Asp	Gln	Leu	Gly
			165						170					175	
Thr	Ile	Phe	Gly	Lys	Ser	Ile	Ala	Arg	Val	Glu	Lys	Val	Phe	Arg	Lys
		180						185					190		
Lys	Gln	Val	Ser	Lys	Thr	Lys	Ile	Arg	Val	Ile	Ser	Thr	Ile	Leu	Phe
		195					200					205			
Ile	Leu	Ala	Gly	Cys	Ile	Val	Phe	Val	Thr	Ile	Pro	Ala	Val	Ile	Phe
	210					215					220				
Lys	Tyr	Ile	Glu	Gly	Trp	Thr	Ala	Leu	Glu	Ser	Ile	Tyr	Phe	Val	Val
225					230					235					240
Val	Thr	Leu	Thr	Thr	Val	Gly	Phe	Gly	Asp	Phe	Val	Ala	Gly	Gly	Asn
			245						250					255	
Ala	Gly	Ile	Asn	Tyr	Arg	Glu	Trp	Tyr	Lys	Pro	Leu	Val	Trp	Phe	Trp
		260						265					270		

Ile Leu Val Gly Leu Ala Tyr Phe Ala Ala Val Leu Ser Met Ile Gly
275 280 285

Asp Trp Leu Arg Val Leu Ser Lys Lys Thr Lys Glu Glu Val Gly Glu
290 295 300

Ile Lys Ala His Ala Ala Glu Trp Lys Ala Asn Val Thr Ala Glu Phe
305 310 315 320

Arg Glu Thr Arg Arg Arg Leu Ser Val Glu Ile His Asp Lys Leu Gln
325 330 335

Arg Ala Ala Thr Ile Arg
340

<210> 45
<211> 392
<212> PRT
<213> Homo sapiens

<400> 45
Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Lys Thr Ile Glu Lys Val
1 5 10 15

Arg Gln Thr Phe Asp Asn Tyr Glu Ser Asn Cys Phe Glu Val Leu Leu
20 25 30

Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Tyr Met Gln Ile Ala Pro
35 40 45

Ile Arg Asn Glu His Glu Lys Val Val Leu Phe Leu Cys Thr Phe Lys
50 55 60

Asp Ile Thr Leu Phe Lys Gln Pro Ile Glu Asp Asp Ser Thr Lys Gly
65 70 75 80

Gly Trp Thr Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Asn Ser Arg
85 90 95

Ser Val Leu Gln Gln Leu Thr Pro Met Asn Lys Thr Glu Val Val His
100 105 110

Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser Asp Ile Leu
115 120 125

Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His Ile Ile Leu
130 135 140

His Tyr Cys Ala Phe Lys Thr Thr Trp Asp Trp Val Ile Leu Ile Leu
145 150 155 160

Thr Phe Tyr Thr Ala Ile Met Val Pro Tyr Asn Val Ser Phe Lys Thr
165 170 175

Lys Gln Asn Asn Ile Ala Trp Leu Val Leu Asp Ser Val Val Asp Val

180					185					190					
Ile	Phe	Leu	Val	Asp	Ile	Val	Leu	Asn	Phe	His	Thr	Thr	Phe	Val	Gly
		195					200					205			
Pro	Gly	Gly	Glu	Val	Ile	Ser	Asp	Pro	Lys	Leu	Ile	Arg	Met	Asn	Tyr
	210					215					220				
Leu	Lys	Thr	Trp	Phe	Val	Ile	Asp	Leu	Leu	Ser	Cys	Leu	Pro	Tyr	Asp
225						230					235				240
Ile	Ile	Asn	Ala	Phe	Glu	Asn	Val	Asp	Glu	Gly	Ile	Ser	Ser	Leu	Phe
			245						250					255	
Ser	Ser	Leu	Lys	Val	Val	Arg	Leu	Leu	Arg	Leu	Gly	Arg	Val	Ala	Arg
			260					265					270		
Lys	Leu	Asp	His	Tyr	Leu	Glu	Tyr	Gly	Ala	Ala	Val	Leu	Val	Leu	Leu
		275					280					285			
Val	Cys	Val	Phe	Gly	Leu	Val	Ala	His	Trp	Leu	Ala	Cys	Ile	Trp	Tyr
	290					295					300				
Ser	Ile	Gly	Asp	Tyr	Glu	Val	Ile	Asp	Glu	Val	Thr	Asn	Thr	Ile	Gln
305						310					315				320
Ile	Asp	Ser	Trp	Leu	Tyr	Gln	Leu	Ala	Leu	Ser	Ile	Gly	Thr	Pro	Tyr
			325						330					335	
Arg	Tyr	Asn	Thr	Ser	Ala	Gly	Ile	Trp	Glu	Gly	Gly	Pro	Ser	Lys	Asp
			340					345					350		
Ser	Leu	Tyr	Val	Ser	Ser	Leu	Tyr	Phe	Thr	Met	Thr	Ser	Leu	Thr	Thr
		355					360					365			
Ile	Gly	Phe	Gly	Asn	Ile	Ala	Pro	Thr	Thr	Asp	Val	Glu	Lys	Met	Phe
	370					375					380				
Ser	Val	Ala	Met	Met	Met	Val	Gly								
385						390									

<210> 46
 <211> 280
 <212> PRT
 <213> Homo sapiens

<400> 46
 Met Cys Asn Thr Pro Thr Tyr Cys Asp Leu Gly Lys Ala Ala Glu Asp
 1 5 10 15
 Val Phe Asn Lys Gly Tyr Gly Phe Gly Met Gly Lys Ile Asp Leu Lys
 20 25 30
 Thr Lys Ser Cys Ser Ala Val Glu Phe Ser Thr Ser Gly His Ala Tyr
 35 40 45

Thr Asp Thr Gly Lys Ala Ser Gly Asn Leu Glu Pro Glu Cys Lys Val
 50 55 60
 Cys Asn Tyr Gly Leu Thr Phe Thr Gln Lys Arg Asn Thr Asp Asn Thr
 65 70 75 80
 Leu Gly Thr Glu Ile Ser Leu Glu Asn Lys Leu Ala Lys Gly Leu Lys
 85 90 95
 Leu Ser Leu Asp Thr Ile Leu Val Pro Asn Thr Gly Lys Lys Ser Gly
 100 105 110
 Glu Leu Lys Ala Ser Tyr Lys Trp Asp Cys Phe Ser Val Gly Ser Asn
 115 120 125
 Val Asp Leu Asp Phe Ser Gly Pro Thr Ile Tyr Gly Trp Ala Val Leu
 130 135 140
 Val Phe Glu Gly Trp Leu Ala Gly Tyr Gln Met Ser Phe Asp Thr Ala
 145 150 155 160
 Lys Ser Lys Leu Ser Gln Asn Asn Phe Ala Leu Gly Tyr Glu Ala Ala
 165 170 175
 Asp Phe Gln Leu His Thr His Val Thr Asp Gly Thr Glu Phe Gly Gly
 180 185 190
 Ser Ile Tyr Gln Lys Val Asn Gly Ile Glu Met Ser Ile Asn Leu Ala
 195 200 205
 Trp Thr Ala Gly Asn Asn Thr His Phe Gly Ile Ala Thr Lys Tyr Lys
 210 215 220
 Leu Asp Cys Arg Thr Ser Leu Ser Ala Lys Val Asn Asn Ala Ser Leu
 225 230 235 240
 Ile Gly Leu Gly Tyr Thr Gln Thr Leu Arg Pro Gly Val Lys Leu Thr
 245 250 255
 Leu Ala Leu Ile Asp Gly Asn Asn Phe Ser Ala Gly Gly His Lys Val
 260 265 270
 Gly Leu Ala Phe Glu Leu Gln Ala
 275 280

<210> 47
 <211> 263
 <212> PRT
 <213> Homo sapiens

<400> 47
 Pro Leu Leu Leu Ala Tyr Val Cys Tyr Leu Leu Leu Gly Ala Thr Ile
 1 5 10 15
 Phe Gln Leu Leu Glu Arg Gln Ala Glu Ala Gln Ser Arg Asp Gln Phe
 20 25 30

Gln Leu Glu Lys Leu Arg Phe Leu Glu Asn Tyr Thr Cys Leu Asp Gln
 35 40 45
 Trp Ala Met Glu Gln Phe Val Gln Val Ile Met Glu Ala Trp Val Lys
 50 55 60
 Gly Val Asn Pro Lys Gly Asn Ser Thr Asn Pro Ser Asn Trp Asp Phe
 65 70 75 80
 Gly Ser Ser Phe Phe Phe Ala Gly Thr Val Val Thr Thr Ile Gly Tyr
 85 90 95
 Gly Asn Leu Ala Pro Ser Thr Glu Ala Gly Gln Val Phe Cys Val Phe
 100 105 110
 Tyr Ala Leu Leu Gly Ile Pro Leu Asn Val Ile Phe Leu Asn His Leu
 115 120 125
 Gly Thr Gly Leu Arg Ala His Leu Ala Ala Ile Glu Arg Trp Glu Asp
 130 135 140
 Arg Pro Arg Arg Ser Gln Val Leu Gln Val Leu Gly Leu Ala Leu Phe
 145 150 155 160
 Leu Thr Leu Gly Thr Leu Val Ile Leu Ile Phe Pro Pro Met Val Phe
 165 170 175
 Ser His Val Glu Gly Trp Ser Phe Ser Glu Gly Phe Tyr Phe Ala Phe
 180 185 190
 Ile Thr Leu Ser Thr Ile Gly Phe Gly Asp Tyr Val Val Gly Met Asn
 195 200 205
 Pro Ser Gln Arg Tyr Pro Leu Trp Tyr Lys Asn Met Val Ser Leu Trp
 210 215 220
 Ile Leu Phe Gly Met Ala Trp Leu Ala Leu Ile Ile Lys Leu Ile Leu
 225 230 235 240
 Ser Gln Leu Glu Thr Pro Gly Arg Val Cys Ser Cys Cys His His Ser
 245 250 255
 Ser Lys Glu Asp Phe Lys Ser
 260

<210> 48
 <211> 115
 <212> PRT
 <213> Homo sapiens

<400> 48
 Phe Ser Glu Ile Phe Phe Val Ser Ile Cys Thr Ser Glu Leu Ser Met
 1 5 10 15

Lys Val Tyr Val Asp Pro Ile Asn Tyr Trp Lys Asn Gly Tyr Asn Leu

	20		25		30
Leu Asp Val Ile Ile Ile Ile Val Met Phe Leu Pro Tyr Ala Leu Arg	35	40	45		
Gln Leu Met Gly Lys Gln Phe Thr Tyr Leu Tyr Ile Ala Asp Gly Met	50	55	60		
Gln Ser Leu Arg Ile Leu Lys Leu Ile Gly Tyr Ser Gln Gly Ile Arg	65	70	75	80	
Thr Leu Ile Thr Ala Val Gly Gln Thr Val Tyr Thr Val Ala Ser Val	85	90	95		
Leu Leu Leu Leu Phe Leu Leu Met Tyr Ile Phe Ala Ile Leu Gly Phe	100	105	110		
Cys Leu Phe	115				

<210> 49
 <211> 98
 <212> PRT
 <213> Homo sapiens

Met Ser Asp Pro Ile Thr Leu Asn Val Gly Gly Lys Leu Tyr Thr Thr	1	5	10	15
Ser Leu Ala Thr Leu Thr Ser Phe Pro Asp Ser Met Leu Gly Ala Met	20	25	30	
Phe Ser Gly Lys Met Pro Thr Lys Arg Asp Ser Gln Gly Asn Cys Phe	35	40	45	
Ile Asp Arg Asp Gly Lys Val Phe Arg Tyr Ile Leu Asn Phe Leu Arg	50	55	60	
Thr Ser His Leu Asp Leu Pro Glu Asp Phe Gln Glu Met Gly Leu Leu	65	70	75	80
Arg Arg Glu Ala Asp Phe Tyr Gln Val Gln Pro Leu Ile Glu Ala Leu	85	90	95	
Gln Glu				

<210> 50
 <211> 289
 <212> PRT
 <213> Homo sapiens

Arg Val Ala Leu Ala Lys Glu Glu Val Lys Ser Gly Thr Lys Gly Ser	1	5	10	15
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<213> Homo sapiens

<400> 51

Lys Thr Val Ser Gln Trp Glu Arg His Ile Leu Val Trp Lys Gly Val
1 5 10 15
Asp Ile Arg Arg Asp Leu Asp Ser Ala Arg Thr Gln Ala His Cys Pro
20 25 30
Leu Leu Arg Arg Ala Lys Pro Ser Arg Cys Phe Ser Trp Glu Ser Gln
35 40 45
Thr Thr Met Val Cys Gln Gln Glu Gly Ser Gln Asp Lys Thr Tyr Glu
50 55 60
Val Lys Met Asn Asn Asp Thr Glu Ala Cys Ile Glu Pro Ser Leu Leu
65 70 75 80
Ser Thr Glu Ile

<210> 52

<211> 90

<212> PRT

<213> Homo sapiens

<400> 52

Arg Gln Asp Pro Val Ser Arg Gly Leu Cys Pro His Arg Glu Arg His
1 5 10 15
Val Leu Val Gln Ala Gly Leu Glu Phe Arg Lys Asp Ser Gly Ser Val
20 25 30
Gly Thr Pro Ala His Cys Pro Leu Leu Gly Arg Ala Asn Pro Pro Arg
35 40 45
Cys Phe Ser Gln Glu Ser Gln Ile Ala Met Val Cys Gln Glu Arg Ser
50 55 60
Gln Asn Glu Thr Tyr Glu Val Lys Met Asn Asn Asp Thr Glu Ala Cys
65 70 75 80
Ser Glu Pro Ser Leu Leu Ser Thr Glu Met
85 90

<210> 53

<211> 43

<212> PRT

<213> Homo sapiens

<400> 53

Asn Leu Met Leu Glu Ala Gly Asp Asp Ala Gly Lys Val Lys Trp Val
1 5 10 15
Asp Ile Asn Asp Lys Leu Lys Leu Tyr Ala Ser His Ser Gln Phe Ile
20 25 30

Lys Leu Val Ala Glu Lys Arg Asp Ala His Trp
35 40

<210> 54
<211> 110
<212> PRT
<213> Homo sapiens

<400> 54
Leu Leu Glu Gly Gly Ala Tyr Ile Asn Glu Ser Asn Asp Arg Gly Glu
1 5 10 15
Thr Pro Leu Met Ile Ala Cys Lys Thr Lys His Val Asp His Gln Ser
20 25 30
Val Ser Lys Ala Lys Met Val Lys Tyr Leu Leu Glu Asn Asn Ala Asp
35 40 45
Pro Asn Ile Gln Asp Lys Ser Gly Lys Thr Ala Leu Met His Ala Cys
50 55 60
Leu Glu Lys Ala Gly Pro Glu Val Val Ser Leu Leu Leu Lys Ser Gly
65 70 75 80
Ala Asp Leu Ser Leu Gln Asp His Ser Ser Tyr Ser Ala Leu Val Tyr
85 90 95
Ala Ile Asn Ser Glu Asp Thr Glu Thr Leu Lys Val Leu Leu
100 105 110

<210> 55
<211> 572
<212> DNA
<213> Homo sapiens

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<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (397)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (469)
<223> a, c, t, g, other or unknown

<220>
<221> modified_base
<222> (526)
<223> a, c, t, g, other or unknown

<220>
 <221> modified_base
 <222> (547)
 <223> a, c, t, g, other or unknown

<400> 55

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ttgtttctcg tcagcataaa gaattcatac gacttcgaag aaggcagagg cgccaacgct 120
tgaggaaga tatcatccaa gaaagtcgtt tctatttccg tggctatggc ttggggccact 180
gcctgcaggc aagagatgga ggtccaatgg aaggttctgg catttatagt cccaacctc 240
cagcccctct tctaagggaa ggagaaacca cgcggaaact ctacgtggac tgagccaaga 300
gaattgacac catctcccgg gctgtcttcc ctttcacttt cctcatcttc aatatcttct 360
actgggttgt ctataaagtg ctatggtcag aagntancca ccaggctctg tgaatagggt 420
gggagctata gagtcctgct gctggcctcc tgcttcctcc tgggtgggnt ttctccctca 480
gttagactcc attaggggtt tggacagttc ctctctgac tcccantcag aacttcatct 540
accagtncca aagctatgtg ggcctatatt gc 572
  
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<210> 56
 <211> 1798
 <212> DNA
 <213> Homo sapiens

<400> 56

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atcgtgggag ggctcttgat ctgtgattta tagataggca cagggaaccc aacggcagac 180
aggctcctag gcccacacaga taccgcgcgc cgggactcgg agctgtgggg tgtggggagg 240
cggaggcacc aactaagagc gacctagcat cgcaaagccg ccctcggggc gctcatggcg 300
ggacgcctcc tgggaaaaggc tttagccgcg gtgtctctct ctctggcctt ggctctgtg 360
actatcaggt cctcgcgctg ccgcggcatc caggcgttca gaaactcgtt ttcacttctt 420
tgggttctac ttaataccaa cgtcatgtct ggttctaata gtccaaaga aaattctcac 480
aataaggctc ggacgtctcc ttacccaggt tcaaaagttg aacgaagcca gggttcctaat 540
gagaaagtgg gctggcttgt tgagtggcaa gactataagc ctgtggaata cactgcagtc 600
tctgtcttgg ctggacccag gtgggcagat cctcagatca gtgaaagtaa tttttctccc 660
aagtttaacg aaaaggatgg gcatgttgag agaaagagca agaatggcct gtatgagatt 720
gaaaatggaa gaccgagaaa tcctgcagga cggactggac tgggtggccg ggggcttttg 780
gggcatggg gcccaaatca cgctgcagat ccattataa ccagatggaa aagggatagc 840
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ttcatctagt tcttgtttgt caatgccttc cctcccgtc cccatcttct gaggcctgaa 1740
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<210> 57
 <211> 101
 <212> PRT
 <213> Homo sapiens

<400> 57
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 1 5 10 15
 Thr Ser Leu Thr Thr Leu Thr Arg Tyr Pro Asp Ser Met Leu Gly Ala
 20 25 30
 Met Phe Gly Gly Asp Phe Pro Thr Ala Arg Asp Pro Gln Gly Asn Tyr
 35 40 45
 Phe Ile Asp Arg Asp Gly Pro Leu Phe Arg Tyr Val Leu Asn Phe Leu
 50 55 60
 Arg Thr Ser Glu Leu Thr Leu Pro Leu Asp Phe Lys Glu Phe Asp Leu
 65 70 75 80
 Leu Arg Lys Glu Ala Asp Phe Tyr Gln Ile Glu Pro Leu Ile Gln Cys
 85 90 95
 Leu Asn Asp Pro Lys
 100

<210> 58
 <211> 103
 <212> PRT
 <213> Homo sapiens

<400> 58
 Tyr Met Met Thr Asp Pro Val Thr Leu Asn Val Gly Gly His Leu Tyr
 1 5 10 15
 Thr Thr Ser Leu Thr Thr Leu Thr Arg Tyr Pro Asp Ser Met Leu Gly
 20 25 30
 Ala Met Phe Gly Gly Asp Phe Pro Thr Ala Arg Asp Pro Gln Gly Asn
 35 40 45
 Tyr Phe Ile Asp Arg Asp Gly Pro Leu Phe Tyr Val Leu Asn Phe Leu
 50 55 60
 Arg Thr Ser Glu Leu Thr Leu Pro Leu Asp Phe Lys Glu Phe Asp Leu
 65 70 75 80
 Leu Arg Lys Glu Ala Asp Phe Tyr Gln Ile Glu Pro Leu Ile Gln Cys
 85 90 95
 Leu Asn Asp Pro Lys Pro Leu
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<210> 59

<211> 50
<212> PRT
<213> Homo sapiens

<400> 59
Gly Asn Cys Arg Val Ala Asn Ala Glu Glu Lys Leu Met Asp Asp Leu
1 5 10 15
Leu Asn Lys Thr Arg Tyr Asn Asn Leu Ile Arg Pro Ala Thr Ser Ser
20 25 30
Ser Gln Leu Ile Ser Ile Lys Leu Gln Leu Ser Leu Ala Gln Leu Ile
35 40 45
Ser Val
50

<210> 60
<211> 92
<212> PRT
<213> Homo sapiens

<400> 60
Val Thr Leu Asn Val Gly Gly His Leu Tyr Thr Thr Ser Leu Thr Thr
1 5 10 15
Leu Thr Arg Tyr Pro Asp Ser Met Leu Gly Ala Met Phe Gly Gly Asp
20 25 30
Phe Pro Thr Ala Arg Asp Pro Gln Gly Asn Tyr Phe Ile Asp Arg Asp
35 40 45
Gly Pro Leu Phe Arg Tyr Val Leu Asn Phe Leu Arg Thr Ser Glu Leu
50 55 60
Thr Leu Pro Leu Asp Phe Lys Glu Phe Asp Leu Leu Arg Lys Glu Ala
65 70 75 80
Asp Phe Tyr Gln Ile Glu Pro Leu Ile Gln Cys Leu
85 90

<210> 61
<211> 502
<212> PRT
<213> Homo sapiens

<400> 61
Pro Ala Gly Val Thr Pro Pro Pro Pro Pro Arg Pro Gly Arg Thr Phe
1 5 10 15
His Ala Ile Phe Thr Arg Arg His Arg Thr Pro Asp Trp Gly Gly Cys
20 25 30
Gly Val Gly Ala Thr Arg Pro Phe Thr Gly Arg Pro Gly Cys Ala Arg
35 40 45

His Gly Ala Thr Val Pro Ala Ala Leu Arg Cys Cys Glu Arg Leu Val
 50 55 60

Leu Asn Val Ala Gly Leu Arg Phe Glu Thr Arg Ala Arg Thr Leu Gly
 65 70 75 80

Arg Phe Pro Asp Thr Leu Leu Gly Asp Pro Val Arg Arg Ser Arg Phe
 85 90 95

Tyr Asp Gly Ala Arg Ala Glu Tyr Phe Phe Asp Arg His Arg Pro Ser
 100 105 110

Phe Asp Ala Val Leu Tyr Tyr Tyr Gln Ser Gly Gly Arg Leu Arg Arg
 115 120 125

Pro Ala His Val Pro Leu Asp Val Phe Leu Glu Glu Val Ser Phe Tyr
 130 135 140

Gly Leu Gly Arg Arg Leu Ala Arg Leu Arg Glu Asp Glu Gly Cys Ala
 145 150 155 160

Val Ala Glu Arg Pro Leu Pro Pro Pro Phe Ala Arg Gln Leu Trp Leu
 165 170 175

Leu Phe Glu Phe Pro Glu Ser Ser Gln Ala Ala Arg Val Leu Ala Val
 180 185 190

Val Ser Val Leu Val Ile Leu Val Ser Ile Val Val Phe Cys Leu Glu
 195 200 205

Thr Leu Pro Asp Phe Arg Asp Asp Arg Asp Asp Pro Gly Leu Ala Pro
 210 215 220

Val Ala Ala Ala Thr Gly Ser Phe Leu Ala Arg Leu Asn Gly Ser Ser
 225 230 235 240

Pro Met Pro Gly Ala Pro Pro Arg Gln Pro Phe Asn Asp Pro Phe Phe
 245 250 255

Val Val Glu Thr Leu Cys Ile Cys Trp Phe Ser Phe Glu Leu Leu Val
 260 265 270

His Leu Val Ala Cys Pro Ser Lys Ala Val Phe Phe Lys Asn Val Met
 275 280 285

Asn Leu Ile Asp Phe Val Ala Ile Leu Pro Tyr Phe Val Ala Leu Gly
 290 295 300

Thr Glu Leu Ala Arg Gln Arg Gly Val Gly Gln Pro Ala Met Ser Leu
 305 310 315 320

Ala Ile Leu Arg Val Ile Arg Leu Val Arg Val Phe Arg Ile Phe Lys
 325 330 335

Leu Ser Arg His Ser Lys Gly Leu Gln Ile Leu Gly Gln Thr Leu Arg
 340 345 350

Ala Ser Met Arg Glu Leu Gly Leu Leu Ile Phe Phe Leu Phe Ile Gly
 355 360 365
 Val Val Leu Phe Ser Ser Ala Val Tyr Phe Ala Glu Val Asp Arg Val
 370 375 380
 Asp Thr His Phe Thr Ser Ile Pro Glu Ser Phe Trp Trp Ala Val Val
 385 390 395 400
 Thr Met Thr Thr Val Gly Tyr Gly Asp Met Ala Pro Val Thr Val Gly
 405 410 415
 Gly Lys Ile Val Gly Ser Leu Cys Ala Ile Ala Gly Val Leu Thr Ile
 420 425 430
 Ser Leu Pro Val Pro Val Ile Val Ser Asn Phe Ser Tyr Phe Tyr His
 435 440 445
 Arg Glu Thr Glu Gly Glu Glu Ala Gly Met Tyr Ser His Val Asp Thr
 450 455 460
 Gln Pro Cys Gly Thr Leu Glu Gly Lys Ala Asn Gly Gly Leu Val Asp
 465 470 475 480
 Ser Glu Val Pro Glu Leu Leu Pro Pro Leu Trp Pro Pro Ala Gly Lys
 485 490 495
 His Met Val Thr Glu Val
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<210> 62
 <211> 250
 <212> PRT
 <213> Homo sapiens

<220>
 <221> MOD_RES
 <222> (51)..(63)
 <223> Any amino acid

<220>
 <221> MOD_RES
 <222> (169)..(179)
 <223> Any amino acid

<400> 62
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 1 5 10 15
 Glu Ala Glu Ala Arg Ala Arg Trp Gly Ala Thr Leu Arg Asn Phe Ser
 20 25 30
 Ala Ala His Gly Val Ala Glu Pro Glu Leu Arg Ala Phe Leu Arg His
 35 40 45

Tyr Glu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Pro
 50 55 60
 Arg Trp Asp Phe Pro Gly Ala Phe Tyr Phe Val Gly Thr Val Val Ser
 65 70 75 80
 Thr Ile Gly Phe Gly Met Thr Thr Pro Ala Thr Val Gly Gly Lys Ala
 85 90 95
 Phe Leu Ile Ala Tyr Gly Leu Phe Gly Cys Ala Gly Thr Ile Leu Phe
 100 105 110
 Phe Asn Leu Phe Leu Glu Arg Ile Ile Ser Leu Leu Ala Phe Ile Met
 115 120 125
 Arg Ala Cys Arg Glu Arg Gln Leu Arg Arg Ser Gly Leu Leu Pro Ala
 130 135 140
 Thr Phe Arg Arg Gly Ser Ala Leu Ser Glu Ala Asp Ser Leu Ala Gly
 145 150 155 160
 Trp Lys Pro Ser Val Tyr His Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 165 170 175
 Xaa Xaa Xaa Ser Cys Cys Ala Ser Ala Met Tyr Thr Ser Val Glu Gly
 180 185 190
 Trp Asp Tyr Val Asp Ser Leu Tyr Phe Cys Phe Val Thr Phe Ser Thr
 195 200 205
 Ile Gly Phe Gly Asp Leu Val Ser Ser Gln His Ala Ala Tyr Arg Asn
 210 215 220
 Gln Gly Leu Tyr Arg Leu Gly Asn Phe Leu Phe Ile Leu Leu Gly Val
 225 230 235 240
 Cys Cys Ile Tyr Ser Leu Phe Asn Val Ile
 245 250

<210> 63
 <211> 225
 <212> PRT
 <213> Homo sapiens

<400> 63
 Tyr Leu Leu Val Gly Ala Ala Val Phe Asp Ala Leu Glu Ser Glu Pro
 1 5 10 15
 Glu Leu Ile Glu Arg Gln Arg Leu Glu Leu Arg Gln Gln Glu Leu Arg
 20 25 30
 Ala Arg Tyr Asn Leu Ser Gln Gly Gly Tyr Glu Glu Leu Glu Arg Val
 35 40 45
 Val Leu Arg Leu Lys Pro His Lys Ala Gly Val Gln Trp Arg Phe Ala
 50 55 60

Gly	Ser	Phe	Tyr	Phe	Ala	Ile	Thr	Val	Ile	Thr	Thr	Ile	Gly	Tyr	Gly	65	70	75	80
His	Ala	Ala	Pro	Ser	Thr	Asp	Gly	Gly	Lys	Val	Phe	Cys	Met	Phe	Tyr	85	90	95	
Ala	Leu	Leu	Gly	Ile	Pro	Leu	Thr	Leu	Val	Met	Phe	Gln	Ser	Leu	Gly	100	105	110	
Glu	Arg	Ile	Asn	Thr	Leu	Val	Arg	Tyr	Leu	Leu	His	Arg	Ala	Lys	Lys	115	120	125	
Gly	Leu	Gly	Met	Arg	Arg	Ala	Asp	Val	Ser	Met	Ala	Asn	Met	Val	Leu	130	135	140	
Ile	Gly	Phe	Phe	Ser	Cys	Ile	Ser	Thr	Leu	Cys	Ile	Gly	Ala	Ala	Ala	145	150	155	160
Phe	Ser	His	Tyr	Glu	His	Trp	Thr	Phe	Phe	Gln	Ala	Tyr	Tyr	Tyr	Cys	165	170	175	
Phe	Ile	Thr	Leu	Thr	Thr	Ile	Gly	Phe	Gly	Asp	Tyr	Val	Ala	Leu	Gln	180	185	190	
Lys	Asp	Gln	Ala	Leu	Gln	Thr	Gln	Pro	Gln	Tyr	Val	Ala	Phe	Ser	Phe	195	200	205	
Val	Tyr	Ile	Leu	Thr	Gly	Leu	Thr	Val	Ile	Gly	Ala	Phe	Leu	Asn	Leu	210	215	220	

Val
225

<210> 64
 <211> 234
 <212> DNA
 <213> Homo sapiens

<400> 64
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 atcagtgtga acacacaaag acccactctt tgcccaaac tggtctcttt ggtttggaat 180
 aggctgccat gcttttttaa tgttattgca gcatgtatat tcactacagc atta 234

<210> 65
 <211> 78
 <212> PRT
 <213> Homo sapiens

<400> 65
 Ala Glu Gln Lys Leu Met Asp Asp Leu Leu Asn Lys Thr Arg Tyr His
 1 5 10 15

Asn Leu Ile Arg Pro Ala Ala Ser Ser Ser Gln Leu Ile Ser Ile Glu

20 25 30
 Met Glu Leu Ser Leu Ala Gln Cys Ile Ser Val Asn Thr Gln Arg Pro
 35 40 45
 Thr Leu Cys Pro Lys Leu Phe Ser Leu Val Trp Asn Arg Leu Pro Cys
 50 55 60
 Phe Phe Asn Val Ile Ala Ala Cys Ile Phe Thr Thr Ala Leu
 65 70 75

<210> 66
 <211> 80
 <212> PRT
 <213> Homo sapiens

<400> 66
 Ala Glu Glu Lys Leu Met Asp Asp Leu Leu Asn Lys Thr Arg Tyr Asn
 1 5 10 15
 Asn Leu Ile Arg Pro Ala Thr Ser Ser Ser Gln Leu Ile Ser Ile Lys
 20 25 30
 Leu Gln Leu Ser Leu Ala Gln Leu Ile Ser Val Asn Pro Gln Asp Pro
 35 40 45
 Ser Tyr Val Asp Val Thr Tyr Asp Phe Ile Ile Lys Arg Lys Pro Leu
 50 55 60
 Phe Tyr Thr Ile Asn Leu Ile Ile Pro Cys Val Leu Thr Thr Leu Leu
 65 70 75 80

<210> 67
 <211> 86
 <212> PRT
 <213> Rattus sp.

<400> 67
 Met Glu Ala Leu Thr Leu Trp Leu Leu Pro Trp Ile Cys Gln Cys Val
 1 5 10 15
 Thr Val Arg Ala Asp Ser Ile Ile His Ile Ala Ile Phe Glu Glu Asn
 20 25 30
 Ala Ala Lys Asp Asp Arg Val Phe Gln Leu Ala Val Ser Asp Leu Ser
 35 40 45
 Leu Asn Asp Asp Ile Leu Gln Ser Glu Lys Ile Thr Tyr Ser Ile Lys
 50 55 60
 Val Ile Glu Ala Asn Asn Pro Phe Gln Ala Val Gln Glu Ala Cys Asp
 65 70 75 80
 Leu Met Thr Gln Gly Ile
 85

<210> 68
 <211> 256
 <212> PRT
 <213> Homo sapiens

<220>
 <221> MOD_RES
 <222> (15)
 <223> Any amino acid

<400> 68

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Gln	Gly	Ile	Pro	Thr	Pro	Ala	Gln	Leu	Thr	Lys	Ser	Asn	Ala	Pro	Val	
			20					25					30			
His	Ile	Asp	Val	Gly	Gly	His	Met	Tyr	Thr	Ser	Ser	Leu	Ala	Thr	Leu	
		35					40					45				
Thr	Lys	Tyr	Pro	Glu	Ser	Arg	Ile	Gly	Arg	Leu	Phe	Asp	Gly	Thr	Glu	
	50					55					60					
Pro	Ile	Val	Leu	Asp	Ser	Leu	Lys	Gln	His	Tyr	Phe	Ile	Asp	Arg	Asp	
65					70					75					80	
Gly	Gln	Met	Phe	Arg	Tyr	Ile	Leu	Asn	Phe	Leu	Arg	Thr	Ser	Lys	Leu	
				85					90					95		
Leu	Ile	Pro	Asp	Asp	Phe	Lys	Asp	Tyr	Thr	Leu	Leu	Tyr	Glu	Glu	Ala	
			100					105					110			
Lys	Tyr	Phe	Gln	Leu	Gln	Pro	Met	Leu	Leu	Glu	Met	Glu	Arg	Trp	Lys	
	115					120					125					
Gln	Asp	Arg	Glu	Thr	Gly	Arg	Phe	Ser	Arg	Pro	Cys	Glu	Cys	Leu	Val	
	130					135					140					
Val	Arg	Val	Ala	Pro	Asp	Leu	Gly	Glu	Arg	Ile	Thr	Leu	Ser	Gly	Asp	
145					150					155					160	
Lys	Ser	Leu	Ile	Glu	Glu	Val	Phe	Pro	Glu	Ile	Gly	Asp	Val	Met	Cys	
			165						170					175		
Asn	Ser	Val	Asn	Ala	Gly	Trp	Asn	His	Asp	Ser	Thr	His	Val	Ile	Arg	
			180					185					190			
Phe	Pro	Leu	Asn	Gly	Tyr	Cys	His	Leu	Asn	Ser	Val	Gln	Val	Leu	Glu	
	195						200					205				
Arg	Leu	Gln	Gln	Arg	Gly	Phe	Glu	Ile	Val	Gly	Ser	Cys	Gly	Gly	Gly	
	210					215					220					
Val	Asp	Ser	Ser	Gln	Phe	Ser	Glu	Tyr	Val	Leu	Arg	Arg	Glu	Leu	Arg	
225					230					235				240		

Arg Thr Pro Arg Val Pro Ser Val Ile Arg Ile Lys Gln Glu Pro Leu
245 250 255

<210> 69
<211> 50
<212> PRT
<213> Homo sapiens

<400> 69
Gly Asn Cys Arg Val Ala Asn Ala Glu Glu Lys Leu Met Asp Asp Leu
1 5 10 15
Leu Asn Lys Thr Arg Tyr Asn Asn Leu Ile Arg Pro Ala Thr Ser Ser
20 25 30
Ser Gln Leu Ile Ser Ile Lys Leu Gln Leu Ser Leu Ala Gln Leu Ile
35 40 45
Ser Val
50

<210> 70
<211> 38
<212> PRT
<213> Drosophila melanogaster

<400> 70
Lys Lys Glu Glu Asn Pro Pro Gly Gly Gly Pro Thr Ser Leu Phe Ile
1 5 10 15
Leu Thr Glu Asp Asn Pro Ile Arg Lys Tyr Thr Arg Phe Ile Ile Glu
20 25 30
Trp Pro Pro Phe Glu Tyr
35

<210> 71
<211> 46
<212> PRT
<213> Xenopus sp.

<400> 71
Met Asp Asn Lys Gly Phe Arg Arg Ser Ser Leu Ala Ser Phe His Ser
1 5 10 15
Asn Thr Ser Asp Glu Asp Met Val Glu Ile Thr Glu Ala Thr Leu Asp
20 25 30
Phe Thr Met Thr Asp Asp Val Pro Pro Ile Asp Arg Asp Met
35 40 45

<210> 72

<211> 92
<212> PRT
<213> Homo sapiens

<400> 72

Met	Ala	Pro	Leu	His	His	Ile	Leu	Val	Phe	Cys	Val	Gly	Leu	Leu	Thr
1				5					10					15	
Met	Ala	Lys	Ala	Glu	Ser	Pro	Lys	Glu	His	Asp	Pro	Phe	Thr	Tyr	Asp
			20					25					30		
Tyr	Gln	Ser	Leu	Gln	Ile	Gly	Gly	Leu	Val	Ile	Ala	Gly	Ile	Leu	Phe
		35					40					45			
Ile	Leu	Gly	Ile	Leu	Ile	Val	Leu	Ser	Arg	Arg	Cys	Arg	Cys	Lys	Phe
	50					55					60				
Asn	Gln	Gln	Gln	Arg	Thr	Gly	Glu	Pro	Asp	Glu	Glu	Glu	Gly	Thr	Phe
65					70					75					80
Arg	Ser	Ser	Ile	Arg	Arg	Leu	Ser	Thr	Arg	Arg	Arg				
				85					90						

<210> 73
<211> 141
<212> PRT
<213> Homo sapiens

<400> 73

Val	Ser	Tyr	Val	Lys	Ala	Ile	Asp	Ile	Trp	Met	Ala	Val	Cys	Leu	Leu
1				5					10					15	
Phe	Val	Phe	Ala	Ala	Leu	Leu	Glu	Tyr	Ala	Ala	Val	Asn	Phe	Val	Ser
			20					25					30		
Arg	Gln	His	Lys	Glu	Phe	Leu	Arg	Leu	Arg	Arg	Arg	Gln	Lys	Arg	Gln
		35					40					45			
Asn	Lys	Glu	Glu	Asp	Val	Thr	Arg	Glu	Ser	Arg	Phe	Asn	Phe	Ser	Gly
	50					55					60				
Tyr	Gly	Met	Gly	His	Cys	Leu	Gln	Val	Lys	Asp	Gly	Thr	Ala	Val	Lys
65					70					75					80
Ala	Thr	Pro	Ala	Asn	Pro	Leu	Pro	Gln	Pro	Pro	Lys	Asp	Gly	Asp	Ala
				85					90					95	
Ile	Lys	Lys	Lys	Phe	Val	Asp	Arg	Ala	Lys	Arg	Ile	Asp	Thr	Ile	Ser
			100					105					110		
Arg	Ala	Ala	Phe	Pro	Leu	Ala	Phe	Leu	Ile	Phe	Asn	Ile	Phe	Tyr	Trp
		115					120					125			
Ile	Thr	Tyr	Lys	Ile	Ile	Arg	His	Glu	Asp	Val	His	Lys			
	130					135						140			

<210> 74
<211> 65
<212> PRT
<213> Homo sapiens

<400> 74
Gly Val Leu Val His Leu Val Ile Pro Pro Phe Val Phe Met Val Thr
1 5 10 15
Glu Gly Trp Asn Tyr Ile Glu Gly Leu Tyr Tyr Ser Phe Ile Thr Ile
20 25 30
Ser Thr Ile Gly Phe Gly Asp Phe Val Ala Val Asn Pro Ser Ala Asn
35 40 45
Tyr His Ala Leu Tyr Arg Tyr Phe Val Glu Leu Trp Ile Tyr Leu Gly
50 55 60
Leu
65

<210> 75
<211> 257
<212> PRT
<213> Homo sapiens

<400> 75
Met Lys Arg Gln Asn Val Arg Thr Leu Ala Leu Ile Val Cys Thr Phe
1 5 10 15
Thr Tyr Leu Leu Val Gly Ala Ala Val Phe Asp Ala Leu Glu Ser Glu
20 25 30
Pro Glu Leu Ile Glu Arg Gln Arg Leu Glu Leu Arg Gln Gln Glu Leu
35 40 45
Arg Ala Arg Tyr Asn Leu Ser Gln Gly Gly Tyr Glu Glu Leu Glu Arg
50 55 60
Val Val Leu Arg Leu Lys Pro His Lys Ala Gly Val Gln Trp Arg Phe
65 70 75 80
Ala Gly Ser Phe Tyr Phe Ala Ile Thr Val Ile Thr Thr Ile Tyr Gly
85 90 95
His Ala Ala Pro Ser Thr Asp Gly Gly Lys Val Phe Cys Met Phe Tyr
100 105 110
Ala Leu Leu Gly Ile Pro Leu Thr Leu Val Met Phe Gln Ser Leu Gly
115 120 125
Glu Arg Ile Asn Thr Leu Val Arg Tyr Leu Leu His Arg Ala Lys Lys
130 135 140
Gly Leu Gly Met Arg Arg Ala Asp Val Ser Met Ala Asn Met Val Leu

145		150		155		160
Ile Gly Phe Phe Ser Cys Ile Ser Thr Leu Cys Ile Gly Ala Ala Ala	165	170	175			
Phe Ser His Tyr Glu His Trp Thr Phe Phe Gln Ala Tyr Tyr Tyr Cys	180	185	190			
Phe Ile Thr Leu Thr Thr Ile Gly Phe Gly Asp Tyr Val Ala Leu Gln	195	200	205			
Lys Asp Gln Ala Leu Gln Thr Gln Pro Gln Tyr Val Ala Phe Ser Phe	210	215	220			
Val Tyr Ile Leu Thr Gly Leu Thr Val Ile Gly Ala Phe Leu Asn Leu	225	230	235			240
Val Val Leu Arg Phe Met Thr Met Asn Ala Glu Asp Glu Lys Arg Asp	245	250	255			

Ala

<210> 76
 <211> 338
 <212> PRT
 <213> Homo sapiens

<400> 76
 Pro Lys Ser Ala Ala Gln Asn Ser Lys Pro Arg Leu Ser Phe Ser Thr
 1 5 10 15

Lys Pro Thr Val Leu Ala Ser Arg Val Glu Ser Asp Thr Thr Ile Asn
 20 25 30

Val Met Lys Trp Lys Thr Val Ser Thr Ile Phe Leu Val Val Val Leu
 35 40 45

Tyr Leu Ile Ile Gly Ala Thr Val Phe Lys Ala Leu Glu Gln Pro His
 50 55 60

Glu Ile Ser Gln Arg Thr Thr Ile Val Ile Gln Lys Gln Thr Phe Ile
 65 70 75 80

Ser Gln His Ser Cys Val Asn Ser Thr Glu Leu Asp Glu Leu Ile Gln
 85 90 95

Gln Ile Val Ala Ala Ile Asn Ala Gly Ile Ile Pro Leu Gly Asn Thr
 100 105 110

Ser Asn Gln Ile Ser His Trp Asp Leu Gly Ser Ser Phe Phe Phe Ala
 115 120 125

Gly Thr Val Ile Thr Thr Ile Phe Gly Asn Ile Ser Pro Arg Thr Glu
 130 135 140

Gly Gly Lys Ile Phe Cys Ile Ile Tyr Ala Leu Leu Gly Ile Pro Leu

145		150		155		160
Phe Gly Phe Leu Leu Ala Gly Val Gly Asp Gln Leu Gly Thr Ile Phe	165	170	175			
Gly Lys Gly Ile Ala Lys Val Glu Asp Thr Phe Ile Lys Trp Asn Val	180	185	190			
Ser Gln Thr Lys Ile Arg Ile Ile Ser Thr Ile Ile Phe Ile Leu Phe	195	200	205			
Gly Cys Val Leu Phe Val Ala Leu Pro Ala Ile Ile Phe Lys His Ile	210	215	220			
Glu Gly Trp Ser Ala Leu Asp Ala Ile Tyr Phe Val Val Ile Thr Leu	225	230	235			240
Thr Thr Ile Gly Phe Gly Asp Tyr Val Ala Gly Gly Ser Asp Ile Glu	245	250	255			
Tyr Leu Asp Phe Tyr Lys Pro Val Val Trp Phe Trp Ile Leu Val Gly	260	265	270			
Leu Ala Tyr Phe Ala Ala Val Leu Ser Met Ile Gly Arg Leu Val Arg	275	280	285			
Val Ile Ser Lys Lys Thr Lys Glu Glu Val Gly Glu Phe Arg Ala His	290	295	300			
Ala Ala Glu Trp Thr Ala Asn Val Thr Ala Glu Phe Lys Glu Thr Arg	305	310	315			320
Arg Arg Leu Ser Val Glu Ile Tyr Asp Lys Phe Gln Arg Ala Thr Ser	325	330	335			

Ile Lys

<210> 77
 <211> 393
 <212> PRT
 <213> Rattus norvegicus

<400> 77
 Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Val Glu Lys Val
 1 5 10 15
 Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu Ile Leu Met
 20 25 30
 Tyr Lys Lys Asn Thr Pro Val Trp Phe Phe Val Lys Ile Ala Pro Ile
 35 40 45
 Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys Thr Phe Ser Asp
 50 55 60
 Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser Cys Lys Gly Gly

65	70	75	80
Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser Ser Arg Gly	85	90	95
Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu Asn Val His	100	105	110
Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser Asp Ile Leu	115	120	125
Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His Ile Ile Leu	130	135	140
His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile Leu Ile Leu	145	150	155
Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser Phe Lys Thr	165	170	175
Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile Val Asp Val	180	185	190
Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr Phe Val Gly	195	200	205
Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg Met Asn Tyr	210	215	220
Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu Pro Tyr Asp	225	230	235
Val Ile Asn Ala Phe Glu Asn Val Asp Glu Gly Ile Ser Ser Leu Phe	245	250	255
Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg	260	265	270
Lys Leu Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu	275	280	285
Val Cys Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr	290	295	300
Ser Ile Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg	305	310	315
Asn Asn Ser Trp Leu Tyr Gln Leu Ala Leu Asp Ile Gly Thr Pro Tyr	325	330	335
Gln Phe Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys	340	345	350
Asn Ser Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr	355	360	365
Ser Val Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile			

370

375

380

Phe Ala Val Ala Ile Met Met Ile Gly
 385 390

<210> 78

<211> 283

<212> PRT

<213> Homo sapiens

<400> 78

Met Cys Asn Thr Pro Thr Tyr Cys Asp Leu Gly Lys Ala Ala Lys Asp
 1 5 10 15
 Val Phe Asn Lys Gly Tyr Gly Phe Gly Met Val Lys Ile Asp Leu Lys
 20 25 30
 Thr Lys Ser Cys Ser Gly Val Glu Phe Ser Thr Ser Gly His Ala Tyr
 35 40 45
 Thr Asp Thr Gly Lys Ala Ser Gly Asn Leu Glu Thr Lys Tyr Lys Val
 50 55 60
 Cys Asn Tyr Gly Leu Thr Phe Thr Gln Lys Trp Asn Thr Asp Asn Thr
 65 70 75 80
 Leu Gly Thr Glu Ile Ser Trp Glu Asn Lys Leu Ala Glu Gly Leu Lys
 85 90 95
 Leu Thr Leu Asp Thr Ile Phe Val Pro Asn Thr Gly Lys Lys Ser Gly
 100 105 110
 Lys Leu Lys Ala Ser Tyr Lys Arg Asp Cys Phe Ser Val Gly Ser Asn
 115 120 125
 Val Asp Ile Asp Phe Ser Gly Pro Thr Ile Tyr Gly Trp Ala Val Leu
 130 135 140
 Ala Phe Glu Gly Trp Leu Ala Gly Tyr Gln Met Ser Phe Asp Thr Ala
 145 150 155 160
 Lys Ser Lys Leu Ser Gln Asn Asn Phe Ala Leu Gly Tyr Lys Ala Ala
 165 170 175
 Asp Phe Gln Leu His Thr His Val Asn Asp Gly Thr Glu Phe Gly Gly
 180 185 190
 Ser Ile Tyr Gln Lys Val Asn Glu Lys Ile Glu Thr Ser Ile Asn Leu
 195 200 205
 Ala Trp Thr Ala Gly Ser Asn Asn Thr Arg Phe Gly Ile Ala Ala Lys
 210 215 220
 Tyr Met Leu Asp Cys Arg Thr Ser Leu Ser Ala Lys Val Asn Asn Ala
 225 230 235 240

Ser Leu Ile Gly Leu Gly Tyr Thr Gln Thr Leu Arg Pro Gly Val Lys
245 250 255

Leu Thr Leu Ser Ala Leu Ile Asp Gly Lys Asn Phe Ser Ala Gly Gly
260 265 270

His Lys Val Gly Leu Gly Phe Glu Leu Glu Ala
275 280

<210> 79
<211> 262
<212> PRT
<213> Homo sapiens

<400> 79
Pro Leu Leu Thr Ser Ala Ile Ile Phe Tyr Leu Ala Ile Gly Ala Ala
1 5 10 15

Ile Phe Glu Val Leu Glu Glu Pro His Trp Lys Glu Ala Lys Lys Asn
20 25 30

Tyr Tyr Thr Gln Lys Leu His Leu Leu Lys Glu Phe Pro Cys Leu Gly
35 40 45

Gln Glu Gly Leu Asp Lys Ile Leu Glu Val Val Ser Asp Ala Ala Gly
50 55 60

Gln Gly Val Ala Ile Thr Gly Asn Gln Thr Phe Asn Asn Trp Asn Trp
65 70 75 80

Pro Asn Ala Met Ile Phe Ala Ala Thr Val Ile Thr Thr Ile Tyr Gly
85 90 95

Asn Val Ala Pro Lys Thr Pro Ala Gly Arg Leu Phe Cys Val Phe Tyr
100 105 110

Gly Leu Phe Gly Val Pro Leu Cys Leu Thr Trp Ile Ser Ala Leu Gly
115 120 125

Lys Phe Phe Gly Gly Arg Ala Lys Arg Leu Gly Gln Phe Leu Thr Lys
130 135 140

Arg Gly Val Ser Leu Arg Lys Ala Gln Ile Thr Cys Thr Val Ile Phe
145 150 155 160

Ile Val Trp Gly Val Leu Val His Leu Val Ile Pro Pro Phe Val Phe
165 170 175

Met Val Thr Glu Gly Trp Asn Tyr Ile Glu Gly Leu Tyr Tyr Ser Phe
180 185 190

Ile Thr Ile Ser Thr Ile Gly Phe Gly Asp Phe Val Ala Val Asn Pro
195 200 205

Ser Ala Asn Tyr His Ala Leu Tyr Arg Tyr Phe Val Glu Leu Trp Ile
210 215 220

Tyr Leu Gly Leu Ala Trp Leu Ser Leu Phe Val Asn Trp Lys Val Ser
225 230 235 240

Met Phe Val Glu Val His Lys Ala Ile Lys Lys Arg Arg Arg Arg Arg
245 250 255

Lys Glu Ser Phe Glu Ser
260

<210> 80

<211> 118

<212> PRT

<213> Blattella germanica

<400> 80

Tyr Leu Asn Met Ile Phe Ile Val Ile Phe Ser Ser Glu Cys Leu Met
1 5 10 15

Lys Ile Phe Ala Leu Arg Tyr His Tyr Phe Lys Glu Pro Trp Asn Leu
20 25 30

Phe Asp Phe Val Val Val Ile Leu Ser Ile Leu Gly Leu Val Leu Ser
35 40 45

Asp Ile Ile Glu Lys Tyr Phe Val Ser Pro Thr Leu Leu Arg Val Val
50 55 60

Arg Val Ala Lys Val Gly Arg Val Leu Arg Leu Val Lys Gly Ala Lys
65 70 75 80

Gly Ile Arg Thr Leu Leu Phe Ala Leu Ala Met Ser Leu Pro Ala Leu
85 90 95

Phe Asn Ile Cys Leu Leu Leu Phe Leu Val Met Phe Ile Phe Ala Ile
100 105 110

Phe Gly Met Ser Phe Phe
115

<210> 81

<211> 98

<212> PRT

<213> Homo sapiens

<400> 81

Met Thr Asp Pro Val Thr Leu Asn Val Gly Gly His Leu Tyr Thr Thr
1 5 10 15

Ser Leu Thr Thr Leu Thr Arg Tyr Pro Asp Ser Met Leu Gly Ala Met
20 25 30

Phe Gly Gly Asp Phe Pro Thr Ala Arg Asp Pro Gln Gly Asn Tyr Phe
35 40 45

Ile Asp Arg Asp Gly Pro Leu Phe Arg Tyr Val Leu Asn Phe Leu Arg
50 55 60

Thr Ser Glu Leu Thr Leu Pro Leu Asp Phe Lys Glu Phe Asp Leu Leu
65 70 75 80

Arg Lys Glu Ala Asp Phe Tyr Gln Ile Glu Pro Leu Ile Gln Cys Leu
85 90 95

Asn Asp

<210> 82

<211> 285

<212> PRT

<213> Homo sapiens

<400> 82

Arg Thr Ala Phe Cys Lys Asp His Asp Ser Arg Ser Gly Lys Gln Pro
1 5 10 15

Ser Gln Thr Leu Ser Pro Ser Asp Phe Leu Asp Lys Leu Met Gly Arg
20 25 30

Thr Ser Gly Tyr Asp Ala Arg Ile Arg Pro Asn Phe Lys Pro Pro Val
35 40 45

Asn Val Thr Cys Asn Ile Phe Ile Asn Ser Phe Gly Ser Val Thr Glu
50 55 60

Thr Thr Met Asp Tyr Arg Val Asn Ile Phe Leu Arg Gln Gln Trp Asn
65 70 75 80

Asp Ser Arg Leu Ala Tyr Ser Glu Tyr Pro Asp Asp Ser Leu Asp Leu
85 90 95

Asp Pro Ser Met Leu Asp Ser Ile Trp Lys Pro Asp Leu Phe Phe Ala
100 105 110

Asn Glu Lys Gly Ala Asn Phe His Asp Val Thr Thr Asp Asn Lys Leu
115 120 125

Leu Arg Ile Ser Lys Asn Gly Lys Val Leu Tyr Ser Ile Leu Thr Leu
130 135 140

Thr Leu Ser Cys Pro Met Asp Leu Lys Asn Phe Pro Met Asp Val Gln
145 150 155 160

Thr Cys Thr Met Gln Leu Glu Ser Gly Tyr Thr Met Asn Asp Leu Ile
165 170 175

Phe Glu Trp Leu Ser Asp Gly Pro Val Gln Val Ala Glu Gly Leu Thr
180 185 190

Leu Pro Gln Phe Ile Leu Lys Glu Glu Lys Glu Leu Gly Tyr Cys Thr
195 200 205

Lys His Tyr Asn Thr Lys Phe Thr Cys Ile Glu Val Lys Phe His Leu
 210 215 220
 Glu Arg Gln Met Gly Tyr Tyr Leu Ile Gln Met Tyr Ile Pro Ser Leu
 225 230 235 240
 Leu Ile Val Ile Leu Ser Trp Val Ser Phe Trp Ile Asn Met Asp Ala
 245 250 255
 Ala Pro Ala Arg Val Ala Leu Gly Ile Thr Thr Val Leu Thr Met Thr
 260 265 270
 Thr Gln Ser Ser Gly Ser Arg Ala Ser Leu Pro Lys Val
 275 280 285

<210> 83
 <211> 83
 <212> PRT
 <213> Homo sapiens

<400> 83
 Lys Leu Ser Ser Asn Arg Glu Arg His Val Pro Val Cys Glu Asp Leu
 1 5 10 15
 Glu Leu Arg Arg Asp Ser Gly Ser Ala Gly Thr Gln Ala His Cys Leu
 20 25 30
 Leu Leu Arg Arg Ala Asn Pro Ser Cys His Ser Arg Glu Ser Gln Ala
 35 40 45
 Ala Met Ala Gly Gln Glu Glu Thr Ser Gln Asp Glu Thr Tyr Glu Val
 50 55 60
 Lys Met Asn His Asp Thr Glu Ala Cys Ser Glu Pro Ser Leu Leu Ser
 65 70 75 80
 Thr Glu Met

<210> 84
 <211> 90
 <212> PRT
 <213> Homo sapiens

<400> 84
 Arg Val Gln Glu Val Ala Trp Lys Leu Ser Ser Asn Arg Glu Arg His
 1 5 10 15
 Val Pro Val Cys Glu Asp Leu Glu Leu Arg Arg Asp Ser Gly Ser Ala
 20 25 30
 Gly Thr Gln Ala His Cys Leu Leu Leu Arg Arg Ala Asn Pro Ser Cys
 35 40 45
 His Ser Arg Glu Ser Gln Ala Ala Met Ala Gly Gln Glu Glu Thr Ser
 50 55 60

Gln Asp Glu Thr Tyr Glu Val Lys Met Asn His Asp Thr Glu Ala Cys
65 70 75 80

Ser Glu Pro Ser Leu Leu Ser Thr Glu Met
85 90

<210> 85
<211> 43
<212> PRT
<213> Homo sapiens

<400> 85
Asn Ser Asn Leu His Ala Cys Asp Ser Gly Ala Ser Ile Arg Trp Gln
1 5 10 15

Val Val Asp Arg Arg Ile Pro Leu Tyr Ala Asn His Lys Thr Leu Leu
20 25 30

Gln Lys Ala Ala Ala Glu Phe Gly Ala His Tyr
35 40

<210> 86
<211> 281
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (94)..(108)
<223> Any amino acid

<400> 86
Glu Asn Ser His Asn Lys Ala Arg Thr Ser Pro Tyr Pro Gly Ser Lys
1 5 10 15

Val Glu Arg Ser Gln Val Pro Asn Glu Lys Val Gly Trp Leu Val Glu
20 25 30

Trp Gln Asp Tyr Lys Pro Val Glu Tyr Thr Ala Val Ser Val Leu Ala
35 40 45

Gly Pro Arg Trp Ala Asp Pro Gln Ile Ser Glu Ser Asn Phe Ser Pro
50 55 60

Lys Phe Asn Glu Lys Asp Gly His Val Glu Arg Lys Ser Lys Asn Gly
65 70 75 80

Leu Tyr Glu Ile Glu Asn Gly Arg Pro Arg Asn Pro Ala Xaa Xaa Xaa
85 90 95

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Pro Asn His Ala
100 105 110

Ala Asp Pro Ile Ile Thr Arg Trp Lys Arg Asp Ser Ser Gly Asn Lys

115	120	125
Ile Met His Pro Val Ser Gly Lys His Ile Leu Gln Phe Val Ala Ile 130 135 140		
Lys Arg Lys Asp Cys Gly Glu Trp Ala Ile Pro Gly Gly Met Val Asp 145 150 155 160		
Pro Gly Glu Lys Ile Ser Ala Thr Leu Lys Arg Glu Phe Gly Glu Glu 165 170 175		
Ala Leu Asn Ser Leu Gln Lys Thr Ser Ala Glu Lys Arg Glu Ile Glu 180 185 190		
Glu Lys Leu His Lys Leu Phe Ser Gln Asp His Leu Val Ile Tyr Lys 195 200 205		
Gly Tyr Val Asp Asp Pro Arg Asn Thr Asp Asn Ala Trp Met Glu Thr 210 215 220		
Glu Ala Val Asn Tyr His Asp Glu Thr Gly Glu Ile Met Asp Asn Leu 225 230 235 240		
Met Leu Glu Ala Gly Asp Asp Ala Gly Lys Val Lys Trp Val Asp Ile 245 250 255		
Asn Asp Lys Leu Lys Leu Tyr Ala Ser His Ser Gln Phe Ile Lys Leu 260 265 270		
Val Ala Glu Lys Arg Asp Ala His Trp 275 280		

<210> 87
 <211> 268
 <212> PRT
 <213> Homo sapiens

<400> 87
 Asp Ser Tyr His Val Asn Ala Arg His Leu Leu Tyr Pro Asn Cys Pro
 1 5 10 15
 Val Thr Arg Phe Pro Val Pro Asn Glu Lys Val Pro Trp Glu Thr Glu
 20 25 30
 Phe Leu Ile Tyr Asp Pro Pro Phe Tyr Thr Ala Glu Arg Lys Asp Ala
 35 40 45
 Ala Ala Met Asp Pro Met Gly Asp Thr Leu Glu Pro Leu Ser Thr Ile
 50 55 60
 Gln Tyr Asn Val Val Asp Gly Leu Arg Asp Arg Arg Ser Phe His Gly
 65 70 75 80
 Pro Tyr Thr Val Gln Ala Gly Leu Pro Leu Asn Pro Met Gly Arg Thr
 85 90 95

Gly Leu Arg Gly Arg Gly Ser Leu Ser Cys Phe Gly Pro Asn His Thr
 100 105 110
 Leu Tyr Pro Met Val Thr Arg Trp Arg Arg Asn Glu Asp Gly Ala Ile
 115 120 125
 Cys Arg Lys Ser Ile Lys Lys Met Leu Glu Val Leu Val Val Lys Leu
 130 135 140
 Pro Leu Ser Glu His Trp Ala Leu Pro Gly Gly Ser Arg Glu Pro Gly
 145 150 155 160
 Glu Met Leu Pro Arg Lys Leu Lys Arg Ile Leu Arg Gln Glu His Trp
 165 170 175
 Pro Ser Phe Glu Asn Leu Leu Lys Cys Gly Met Glu Val Tyr Lys Gly
 180 185 190
 Tyr Met Asp Asp Pro Arg Asn Thr Asp Asn Ala Trp Ile Glu Thr Val
 195 200 205
 Ala Val Ser Val His Phe Gln Asp Gln Asn Asp Val Glu Leu Asn Arg
 210 215 220
 Leu Asn Ser Asn Leu His Ala Cys Asp Ser Gly Ala Ser Ile Arg Trp
 225 230 235 240
 Gln Val Val Asp Arg Arg Ile Pro Leu Tyr Ala Asn His Lys Thr Leu
 245 250 255
 Leu Gln Lys Ala Ala Ala Glu Phe Gly Ala His Tyr
 260 265

<210> 88
 <211> 99
 <212> PRT
 <213> Zea mays

<400> 88
 Leu Leu Lys Arg Gly Leu Asp Pro Asn Glu Ser Asp Asn Asn Gly His
 1 5 10 15
 Thr Ala Leu His Ile Ala Ala Ser Lys Gly Asp Glu Gln Cys Val Lys
 20 25 30
 Leu Leu Leu Glu His Gly Ala Asp Pro Asn Ala Arg Asp Ser Glu Gly
 35 40 45
 Lys Val Pro Leu Trp Glu Ala Leu Cys Glu Lys Gln Asn Pro Val Val
 50 55 60
 Glu Leu Leu Val Gln Ser Gly Ala Gly Leu Ser Ser Gly Asp Val Ala
 65 70 75 80
 Leu Tyr Ser Cys Val Ala Val Glu Glu Asn Asp Pro Glu Leu Leu Glu
 85 90 95

Asn Ile Ile